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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/772,488
Filing Date: February 05, 2004
Appellant(s): COOPER ET AL.

Peter H. Priest

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 06/09/2008 appealing from the Office action mailed 01/10/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves **claims 1-16**. **Claims 1**, **2**, **8-10**, and **12-15** were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2004/0034527, hereinafter referred to as Hennecke, in view of British Patent No. 2,375,211, hereinafter referred to as Robinson. **Claims 3-7**, **11** and **16** were rejected under 35 U.S.C. §103(a) as being unpatentable over Hennecke in view of Robinson and further in view of U.S. Patent Publication No. 2003/0091028, hereinafter referred to as Chang.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2004/0034527	Hennecke et al.	2-2004
GB 2,375,211	Robinson et al.	6-2002
US 2003/0091028	Chang et al.	05-2003

Jurafsky, Daniel et al. "Speech and Language Processing" 2000 Prentice-Hall Inc. Chapter 19, pp. 719-750

"Random House Webster's College Dictionary" 1999 Random House, Inc.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-2, **8-10**, and **12-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennecke in view of Robinson.

Regarding **claim 1**, Hennecke discloses a voice recognition system comprising:

- a plurality of voice activated modules [speech recognition units] for receiving voice recognition results representing voice inputs from a user and taking actions in response to the voice inputs (Page 1, paragraph 0015);
- a voice recognition module for receiving voice inputs from a user and performing voice recognition on the voice inputs, performing voice recognition on a voice input comprising identifying members of a collection of elements representing potential matches to the voice input, the voice recognition module being operative to prepare a list of potential voice recognition results for a voice input under consideration [sub-list, vocabulary], each of the potential voice recognition results representing a candidate [list element] for a result matching the voice input received from the user (Fig. 1, elements 6-8, Page 1, paragraphs 0009-0010);
- a results postprocessor for processing the list of potential voice recognition results to improve speed and

accuracy of voice recognition (Fig. 1, element 7; Page 2, paragraph 0020; Page 3, paragraph 0028)

Hennecke does not adequately disclose, but Robinson does disclose features of a speech recognition system including:

- the results postprocessor being operative to make changes to the list [run time repository] based on information relating to past results of recognition attempts (Page 18, line 32 – Page 19, line 04; Page 19, lines 08-16)
- in order to associate a higher priority [probability-of-use] with members of the list having a higher likelihood of matching the voice input under consideration as indicated by the past results of recognition attempts (Page 20, lines 14-20).

The two references are combinable because each is directed to a system for speech recognition that features a dynamically updated vocabulary.

Robinson further provides motivation to combine in disclosing the need for custom-tailoring the voice recognition system to the particular speech patterns of the user to increase accuracy and reliability with repeated use (Page 12, lines 2-4; Page 12, lines 13-17).

Therefore, the examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Hennecke using the teachings of Robinson to improve the recognition process by personalizing the system to individual users.

Regarding **claim 2**, Hennecke in view of Robinson discloses all limitations of **claim 1** as applied above, and Robinson further discloses making changes to the results list based on previously stored information relating to expected user actions (Abstract; Page 4, lines 4-6; Page 19, lines 12-15; Page 20, lines 14-20).

Because this limitation, as disclosed by Robinson, is directly related to the limitations addressed by Robinson above in **claim 1**, the same motivation for combination is applicable.

Regarding **claim 8**, Hennecke discloses a results postprocessor for voice recognition comprising:

- a repository of information relating to a current voice recognition attempt (Fig. 1, item 4; Page 1, paragraph 0015; Page 2, paragraph 0020); and
- a processing module for processing potential voice recognition results in a result list, the voice recognition results representing members of a collection of elements representing potential matches to a voice input under consideration in a current voice recognition attempt (Fig. 1, item 7; Page 2, paragraph 0020; Page 3, paragraph 0028).

Hennecke does not adequately disclose, but Robinson discloses a speech recognition system featuring:

- the processing module being operative to examine the information in the repository relating to the current voice recognition attempt and to make changes to a results list compiled in response to a voice input, the changes being made based on the information stored in the repository (Page 20, line 23 – Col. 21, line 05),
- the changes associating a higher priority with results in the results list that are indicated to have a higher priority of matching the voice input based on information in the repository relating to characteristics of elements of the data collection (Page 20, lines 14-20).

Because this limitation, as disclosed by Robinson, is directly related to the limitations addressed by Robinson above in **claim 1**, the same motivation for combination is applicable.

Regarding **claim 9**, Hennecke in view of Robinson discloses all limitations of **claim 8** as applied above, and Hennecke further discloses a results list that does not include results rejected previously (Page 4, paragraph 0034; Fig. 1, item 8). Robinson

further discloses the ability to access and modify the results list at run time (Page 18, line 32 – Page 19, line 4; Page 20, line 23 – Page 21, line 5).

Because this limitation, as disclosed by Robinson, is directly related to the limitations addressed by Robinson above in **claim 8**, the same motivation for combination is applicable.

Regarding **claim 10**, Hennecke in view of Robinson discloses all limitations of **claim 9** as applied above, and Robinson further discloses the capability to retrieve user and historical information and to make changes to the results list based on the user and historical information (Abstract; Page 4, lines 4-6; Page 19, lines 12-15).

Because this limitation, as disclosed by Robinson, is directly related to the limitations addressed by Robinson above in **claim 9**, the same motivation for combination is applicable.

Regarding **claim 12**, this claim is very similar to limitations found in **claims 1** and **2**, and is rejected for the same reasons.

Regarding **claim 13**, Hennecke in view of Robinson discloses all limitations of **claim 12** as applied above, and Hennecke further discloses a second results list formed without including rejected results of a voice recognition transaction (Page 3, paragraph 0028; Page 4, paragraph 0034).

Regarding **claim 14**, Hennecke in view of Robinson discloses all limitations of **claim 13** as applied above, and Robinson further implies the step of reordering [dynamically modify] the results list based on information relating to past recognition attempts (Page 18, line 32 – Page 19, line 4).

Because this limitation, as disclosed by Robinson, is directly related to the limitations addressed by Robinson above in **claim 12**, the same motivation for combination is applicable.

Regarding **claim 15**, Hennecke in view of Robinson discloses all limitations of **claim 14** as applied above, and Robinson further discloses changing of the results list based on information relating to a user engaging in a current voice recognition transaction (Page 20, line 23 – Page 21, line 5).

Because this limitation, as disclosed by Robinson, is directly related to the limitations addressed by Robinson above in **claim 14**, the same motivation for combination is applicable.

Claims 3-7, **11** and **16** rejected under 35 U.S.C. 103(a) as being unpatentable over Hennecke in view of the admitted prior art as applied to **claims 1-2**, **8-10**, and **12-15** above, and further in view of Chang (US Patent Application Publication 2003/0091028), cited in the previous Office Action.

Regarding **claim 3**, Hennecke in view of Robinson teaches all limitations of **claim 2** as above. Robinson additionally suggests the inclusion of contact data to be accessible (Figure 1; Page 6, lines 27-29), but does not explicitly disclose a likely contact cache including entries for contacts the user is estimated to be likely to call.

Chang discloses the use of a voice controlled communication system that includes a list of likely contacts (Page 21, paragraph 0201; Page 24, paragraph 0246).

The references are inherently related because Chang teaches a system requiring functionality that can be implemented using the teachings of Hennecke in view of Robinson.

Robinson provides motivation to combine in disclosing the need for custom-tailoring the voice recognition system to the particular speech patterns of the user to increase accuracy and reliability with repeated use (Page 12, lines 2-4; Page 12, lines 13-17).

Chang further provides motivation in disclosing the usefulness of a .communications system that utilizes an Internet protocol network for the purpose of yielding significant cost savings and improving communications between distinct entities (Page 1, paragraphs 0006 – 0009).

Therefore, the examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chang using the teachings of Hennecke in view of Robinson to implement a voice-controlled communications system that utilizes an Internet Protocol network for the purpose of yielding significant cost savings and improving communications between

distinct entities, and is further customized to the speech patterns of individual users with repeated use.

Regarding **claim 4**, Hennecke in view of Robinson in further view of Chang discloses all limitations of **claim 3** as applied above, and Robinson further implies reordering the results list [dynamically modifying] based on information relating to past recognition attempts (Page 18, line 32 – Page 19, line 4).

Because this limitation, as disclosed by Robinson, is directly related to the limitations addressed by Robinson above in **claim 3**, the same motivation for combination is applicable.

Regarding **claim 5**, Hennecke in view of Robinson in further view of Chang discloses all limitations of **claim 4** as applied above, and Robinson further discloses that the information relating to past results of recognition attempts includes information relating to a current recognition transaction (Page 18, line 32 – Page 19, line 4; Page 20, line 23 – Page 21, line 5).

Because this limitation, as disclosed by Robinson, is directly related to the limitations addressed by Robinson above in **claim 3**, the same motivation for combination is applicable.

Regarding **claim 6**, Hennecke in view of Robinson in further view of Chang discloses all limitations of **claim 5** as applied above, and Hennecke further discloses a

second results list formed without including rejected results of a voice recognition transaction (Page 3, paragraph 0028; Page 4, paragraph 0034).

Regarding **claim 7**, Hennecke in view of Robinson in further view of Chang discloses all limitations of **claim 6** as applied above, and Robinson further discloses the adaptation of voice recognition operation based upon parameters from a current voice recognition attempt (Page 18, line 32 – Page 19, line 4; Page 20, lines 8-16; Page 20, line 22 – Page 21, line 5).

Because this limitation, as disclosed by Robinson, is directly related to the limitations addressed by Robinson above in **claim 5**, the same motivation for combination is applicable.

Regarding **claim 11**, Hennecke in view of Robinson teaches all limitations of **claim 10** as applied above, but does not explicitly disclose a likely contact cache that is updated in response to user voice input.

Chang further discloses a likely contact cache including contacts the user is likely to call (Page 24, paragraph 0201; Page 29, paragraph 0246).

Robinson further implies reordering [dynamically modifying] the results list based on information relating to past recognition attempts (Page 18, line 32 – Page 19, line 4).

Because this limitation, as disclosed by Chang, is directly related to the limitations addressed by Chang above in **claim 3**, the same motivation for combination is applicable.

Regarding **claim 16**, this claim is very similar to **claim 11** and is rejected for the same reasons.

(10) Response to Argument

The applicant submits the general argument that "nothing in Hennecke, Robinson, or a combination thereof teaches or makes obvious a voice recognition module preparing a list of potential voice recognition results and a results postprocessor for making changes to the list based on past recognition results as claimed by **claim 1**" (Brief, p. 7).

The applicant correctly submits that "the cited portions of Robinson discuss refinement of dialogue structures or grammars that may be stored as a run time repository, and notes that the repository may be dynamically accessed and modified by multiple sources even when active users are online" (Brief, Page 8). The applicant then specifically argues that "**claim 1** addresses modification and reordering of a results list created as part of a current recognition attempt...Robinson addresses an ongoing refinement of system operation, with results being compiled and used to modify data used to create matches" (Brief, Page 8).

The examiner contends that the language of the claims does not require a reordering of a results list *created* as part of a current recognition attempt, but rather uses the specific language comprising "...the voice recognition module being

operative to *prepare* a list of potential voice recognition results (Claim 1)." The examiner contends that the broadest reasonable interpretation of the term "prepare" to one of ordinary skill in the art at the time the invention was made would include operations that are not necessarily related to initial creation of a list, but may be directed only towards organization of the list's elements for a proposed task. Such an interpretation is illustrated in the usage of "preparing data for transmission" or the layperson's usage of "to prepare lunch." In view of this interpretation, the examiner contends that the disclosure of Robinson sufficiently teaches the subject matter presented by the limitations of **claim 1**. The examiner further notes that the *Random House Webster's Dictionary* definition of "prepare," "to put in proper condition or readiness" (p. 1041), further supports this interpretation of the term.

The applicant further argues that "Robinson does not teach that the repository is created as a list of candidate matches for a specific utterance and then reordered based on the results of past attempts" (Brief, Page 9). However, it is noted by the examiner that Robinson explicitly discloses that "Adaptive learning explicitly modifies the language model to selectively listen for utterances that match the style of speech used by callers when talking to the SLI [spoken language interface]," and that "[t]he adaptation can be made specific to a particular caller, or can be applied to the system as a whole" (Page 4, lines 03-07). Robinson further explicitly discloses that "[t]o optimise the balance between coverage and recognition accuracy a frequency based

adaptive learning algorithm can automatically assign probability-of-use values to each predicted utterance in a grammar [one of a list of candidates]. The algorithm is tuned on an on-going basis by the collection of thousands of utterances pooled across all users. Statistical analysis and summaries of the pooled user data result in the specification of weights applied to the ASR language model [reordered based on results of past attempts]. When users use an utterance that has a high probability-of-use the increased probability of the utterance in the grammar increase the probability of correct recognition" (Page 20, lines 08-19).

The examiner contends that this disclosure is directly applicable to the applicant's arguments, where the "probability-of-use values" is analogous to an ordered list of candidates, and is clearly based upon past recognition attempts, being "tuned on an on-going basis by the collection of thousands of utterances." For these reasons, the examiner contends that applicant's argument that "Robinson does not teach that the repository is created as a list of candidate matches for a specific utterance and then reordered based on the results of past attempts" is non-persuasive.

The applicant further argues that "[t]he repository of Robinson comprises dialogue structures and grammars, not candidate recognition results for a recognition attempt, and changes to the repository of Robinson do not constitute changes to a list of candidate recognition results." The applicant does not make any further attempt to

illustrate the differences between the "utterances" as disclosed by Robinson as “dialogue structures” and the “candidate words" as detailed in the claims.

The examiner maintains that given the broadest reasonable interpretation of the claims to one of ordinary skill in the art, the “utterances” of Robinson would inherently require the inclusion of "words" for recognition by the system of Robinson, though the examiner concedes that an "utterance" may comprise a broader range of sounds generated by the user such as groans, coughs, and stuttering of the speech.

It is further noted that Robinson explicitly discloses that the dialogue structures are developed in view of the results of a voice recognition engine (Page 18, lines 15-17), wherein the results of the voice recognition engine are based upon the user utterances as input data (Page 23, lines 07-15).

The examiner further notes that the teachings of Jarafsky et al. in *Speech and Language Processing* provide numerous examples of dialogue structures as inherently pertaining to spoken language from a user, and in particular characterizing dialogue interfaces as relying upon the input of a user (Chapter 19, pp. 719-758). The examiner contends that such teachings serve to further illustrate that the broadest reasonable interpretation of "dialogue structure" to one of ordinary skill in the art would inherently pertain to input word recognition.

Furthermore, the disclosure of Robinson characterizes the interactions of the system with the user as being directly dependent upon recognition of input speech data (Page 1, lines 05-07; Page 2, lines 26-28; Page 3, lines 19-22; Page 4, lines 26-31; Page 5, lines 01-03; Page 8, lines 11-15).

Finally, it is further noted by the examiner that the applicant's previous arguments were directed to the assumption that the teachings of Robinson were in fact analogous to the limitations of the instant application, in particular the assertions by the applicant that "[t]he teachings of Robinson, by contrast, are more directed toward overall refinement of a system, rather than to addressing any one recognition attempt" with respect to **claim 1** (see Remarks of 11/07/2007, p. 13), and also the argument that "Robinson does not address making changes to a list of candidate results but instead refines the initial creation of a results list" with respect to **claim 12** (see Remarks of 11/07/2007, p. 14). The examiner maintains that even though these arguments are not direct contradictions of the current arguments with regard to the limitations of Robinson, they suggest the applicant's acceptance of the interpretation provided by the examiner in the previous Office Actions. The current arguments would have been most appropriately submitted during open prosecution of the claims, in particular in the previously presented Remarks of the applicant with regard to the limitations of Robinson.

Regarding the applicant's arguments for the patentability of **claims 8** and **12**, these arguments are analogous to those detailed above as applied to **claim 1**. No further arguments are presented to either of **claims 8** or **12**, and therefore the examiner's answer to those arguments is the same.

Regarding the applicant's arguments for the patentability of **claims 2**, **9-10** and **13-15**, these arguments are wholly reliant upon the dependency of these claims upon one of parent **claims 1**, **8**, or **12**. As such the arguments regarding patentability of these claims are the same as applied above to parent **claims 1**, **8**, and **12**. The arguments do not address how any additional limitations of **claims 2**, **9-10**, or **13-15** might define over the prior art. Therefore, the examiner's answer to those arguments is the same as applied above to **claims 1**, **8**, and **12**.

Regarding the applicant's assertion that the combination of Hennecke in view of Robinson and in further view of Chang do not teach or render obvious all the limitations of **claims 3-7**, **11**, and **16**, the applicant provides the sole argument that "[**c**]**laims 3-7**, **11**, and **16** are allowable because they depend on allowable claims, and Chang's likely contact cache does not combine with Hennecke and Robinson to achieve the claimed invention. The applicant additionally provides a more complete description of the subject matter taught in the disclosure of Chang.

It is noted by the examiner that mere allegation of patentability over the prior art is insufficient grounds for allowability, and further contends that the applicant has provided no additional reasoning for why the teachings of Chang are improper to address the limitations of the claims to which they are applied.

Regarding the arguments provided by the applicant that "use of a likely contact list does not address the problems solved by the present invention, which deals with

making changes to a list of candidate voice recognition results to improve speed and accuracy," (Brief, Page 13) the examiner contends that this argument in fact relies solely upon the arguments against Robinson as applied above to **claim 1** and therefore the examiner's answer to the argument is the same.

The applicant further argues that the combination of the references as applied to the limitations of the claims is improper. Specifically, the applicant submits that "there must be some reason for the combination other than the hindsight gleaned from the invention itself" (Brief, Page 14).

The examiner contends that it has been illustrated in the rejections as applied above that each of the cited references, *per se* provide the evidence and motivation that a combination such as applied to the claims of the instant application would have been obvious to one of ordinary skill at the time the invention was made. In particular, the examiner contends that the subject matter of the invention *as claimed* is directed to a voice recognition system, which is applicable to a significantly broader scope of the prior art than what is merely disclosed in the specification of the instant application.

It is noted by the examiner that a direct relationship to the art of telephony and communications systems is explicitly disclosed in each of Hennecke (Page 1, paragraph 0006), Robinson (Page 3, lines 19-22), and Change (Abstract; Page 1, paragraphs 0003-0009). The applicant further contends that the motivation to combine the references in each of the relevant combinations is provided by the references themselves, as noted above in the full description of the Grounds of Rejection.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

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A more complete reasoning regarding the combination of references as applicable to the limitations of the claims of the instant application is provided above in the full description of the Grounds of Rejection.

Finally, the applicant presents the argument that “the Examiner did not consider and appreciate the claims as a whole” and that “the Examiner has oversimplified the claims and then searched the prior art for the constituent parts. Even with the claims as a guide, however, the Examiner did not recreate the claimed inventions.” The examiner contends that the applicant’s claims of “oversimplification” are in fact a view of the claims within the broadest reasonable interpretation according to one of ordinary skill in the art at the time the invention was made, and further that all the limitations of claims are properly addressed by the references as applied above in the full description of the Grounds of Rejection.

The examiner further maintains that when viewed given the broadest reasonable interpretation according to one of ordinary skill in the art at the time the invention was made, the limitations of the claims of the instant application are applicable to a much broader scope of subject matter than the specific invention as explicitly specified in the written specification of the instant application. The written specification itself supports this argument, as it explicitly discloses that "[w]hile the present invention is disclosed in the context of a presently preferred embodiment, it will be recognized that a wide variety of implementations may be employed y persons of ordinary skill in the art consistent with the above discussion and the claims which follow below."

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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